Effect of Green Corrosion Inhibition by *Prunus persica* on AISI 1018 Carbon Steel in 0.5M H₂SO₄

A. Rodríguez-Torres¹, O. Olivares-Xometl², M. G. Valladares-Cisneros^{3,*},
J. G. González-Rodríguez¹,

¹ Centro de Investigaciones en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos, Ave. Universidad 1001, Chamilpa, C.P. 62209, Cuernavaca, Morelos, México.

² Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, Av. San Claudio, Ciudad Universitaria. Col. San Manuel, Puebla 72570, Puebla, México

³ Facultad de Ciencias Químicas e Ingeniería, Universidad Autónoma del Estado de Morelos, Ave. Universidad 1001, Chamilpa, C.P. 62209, Cuernavaca, Morelos, México.

*E-mail: mg.valladares@uaem.mx

doi: 10.20964/2018.03.40

Received: 26 June 2017 / Accepted: 9 January 2018 / Published: 5 February 2018

The extract of *Prunus persica* (*P. persica*) leaves was studied as a green corrosion inhibitor (GCI) of AISI 1018 steel in 0.5 M H₂SO₄ at 25 °C. The corrosion inhibition efficiency (CIE) was established by the weight loss, potentiodynamic polarization curves (PPC) and electrochemistry impedance spectroscopy (EIS) techniques. The results showed that the IE was directly proportional to the inhibitor concentration, obtaining a maximum IE at 600 ppm (97 %) with a residence time of 6 h. The analysis of the electrochemical parameters from the polarizations curves confirmed that the *P. persica* extract behaved as a mixed-type GCI with cathodic predominance. The micrographs confirmed negligible damage on the steel surface when protected with the *P. persica* as GCI against the corrosive medium. The GC-MS analysis detected a high concentration of α -Tocopherol (vitamin E) and β -Sitosterol among the phytochemicals present in the *P. persica* extract. *Lactuca sativa* (*L. sativa*) and *Artemia salina* Leach (*A. salina*) were used as bioindicators of possible toxic effects exerted by the GCI, finding that the germination of seeds and radicle development of *L. sativa* were little affected (30 % of inhibition for hypocotile develop) by the *P. persica* extract at 600 ppm. However, the GCI turned to be harmless for the second bioindicator (*A. salina*).

Keywords: *Prunus persica*, Green corrosion inhibitor, AISI 1018 Carbon steel, *Artemia salina* and *Lactuca sativa*.

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